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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,385	07/14/2003	William C. Kress	66329/24816	5435

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EXAMINER	
LEE, TOMMY D	
ART UNIT	**PAPER NUMBER**
2625	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/619,385	KRESS, WILLIAM C.	
	Examiner	Art Unit	
	Thomas D. Lee	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *9,11,12,18-21 and 27-30* is/are allowed.

6)☒ Claim(s) *1-8,10,13,15,16,22,24 and 25* is/are rejected.

7)☒ Claim(s) *14,17,23 and 26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/28/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 8 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "the pattern" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim. It should be noted that "a pattern" is recited in base claim 5, but claim 8 currently does not depend from this claim.

Claim 10 currently depends from itself. Correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-7, 13, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,815,286 (Matsuba et al., hereinafter Matsuba).

Regarding claims 1-4, Matsuba discloses a method of halftone super-cell optimization for artifact reduction, comprising the steps of: receiving a halftone value (binarization of color image data based on threshold matrices (column 18, lines 63-67)); selecting a group of super-cells, each super-cell having a plurality of sub-cells (super-

cells (matrices G1-G4) each comprise 4 2x2 sub-matrices (Fig. 5)); randomly selecting a code-value for each super-cell (threshold values of sub-matrices randomly arranged (column 9, lines 29-53)); and biasing the sub-cells of each super-cell based on its randomly selected code-value (noting Fig. 8, black spots correspond to sub-cells that are biased when uniform image data ID=32 (density=50%) (column 15, lines 9-28)); wherein the total of the randomly selected code-value for the group of super-cells equals the halftone value (uniform image data ID=32 (½ of sub-cells biased) corresponds to density=50% (column 15, lines 9-11)). Each super-cell has sub-cells growing in a predetermined but different manner (column 9, lines 29-53). The number of sub-cells per super-cell is selected from group consisting of 16, 64, and 128 (each matrix G1-G4 consists of 16 sub-cells (Figs. 5 and 7)). The total of the randomly selected code-value for the group of super-cells is based on the average value of all the super-cells (inherent from the distribution of threshold values within each matrix).

Regarding claims 5-7, Matsuba discloses a method of halftone super-cell optimization for artifact reduction, comprising the steps of: receiving a halftone value (binarization of color image data based on threshold matrices (column 18, lines 63-67)); selecting a group of super-cells, each super-cell having a plurality of sub-cells (super-cells (matrices G1-G4) each comprise 4 2x2 sub-matrices (Fig. 5)); using a pattern to select sub-cells from each super-cell (random selection of patterns of arrangement for sub-matrices within each matrix (column 9, lines 29-53)); and biasing the selected group of sub-cells (noting Fig. 8, black spots correspond to sub-cells that are biased when uniform image data ID=32 (density=50%) (column 15, lines 9-28)); wherein the total of

the selected group of sub-cells for the group of super-cells equals the halftone value (uniform image data ID=32 (½ of sub-cells biased) corresponds to density=50% (column 15, lines 9-11)). Each super-cell has a different pattern for selecting sub-cells than all adjacent super-cells (noting Fig. 8(e), different patterns formed for each matrix when density=50%). The number of sub-cells per super-cell is selected from group consisting of 16, 64, and 128 (each matrix G1-G4 consists of 16 sub-cells (Figs. 5 and 7)).

Regarding claim 13, Matsuba discloses an image output apparatus, comprising: means adapted to receive a halftone value (binarization of color image data based on threshold matrices (column 18, lines 63-67)); means adapted to select a group of super-cells, each super-cell having a plurality of sub-cells (super-cells (matrices G1-G4) each comprise 4 2x2 sub-matrices (Fig. 5)); randomly selecting a code-value for each super-cell (threshold values of sub-matrices randomly arranged (column 9, lines 29-53)); means adapted to randomly select a code-value for each super-cell (threshold values of sub-matrices randomly arranged (column 9, lines 29-53)); and means adapted to bias the sub-cells of each super-cell based on its randomly selected code-value (noting Fig. 8, black spots correspond to sub-cells that are biased when uniform image data ID=32 (density=50%) (column 15, lines 9-28)); wherein the total of the randomly selected for the group of super-cells equals the halftone value (uniform image data ID=32 (½ of sub-cells biased) corresponds to density=50% (column 15, lines 9-11)).

Regarding claims 15 and 16, Matsuba discloses an image output apparatus, comprising: means adapted to receive a halftone value (binarization of color image data based on threshold matrices (column 18, lines 63-67)); means adapted to select a

group of super-cells, each super-cell having a plurality of sub-cells (super-cells (matrices G1-G4) each comprise 4 2x2 sub-matrices (Fig. 5)); means adapted to use a pattern to select sub-cells from each super-cell (random selection of patterns of arrangement for sub-matrices within each matrix (column 9, lines 29-53)); and means adapted to bias the selected group of sub-cells (noting Fig. 8, black spots correspond to sub-cells that are biased when uniform image data ID=32 (density=50%) (column 15, lines 9-28)); wherein the total of the selected group of sub-cells for the group of super-cells equals the halftone value (uniform image data ID=32 (½ of sub-cells biased) corresponds to density=50% (column 15, lines 9-11)). Each super-cell has a different pattern for selecting sub-cell than all adjacent super-cells (noting Fig. 8(e), different patterns formed for each matrix when density=50%).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 22, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuba.

These claims recite the limitations of above-rejected claims 13, 15 and 16, respectively, as a computer program product having a computer readable medium having computer program logic recorded thereon. While a computer readable medium storing computer program logic is not expressly disclosed in Matsuba, it is well known in

the art to store computer programs for performing image processing steps in a ROM within a computer, or in a portable memory means such as a CD-ROM that can be read by a computer, thereby enabling the computer to perform the image processing steps. Therefore, it would have been obvious for one of ordinary skill in the art to provide a computer program product having a computer readable medium, so as to enable a computer to perform Matsuba's halftone processing method.

Allowable Subject Matter

7. Claims 9, 11, 12, 18-21 and 27-30 are allowed.

8. Claims 14, 17, 23 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: No prior art has been found to disclose or suggest the combined steps of "selecting a group of super-cells, each super-cell having a plurality of sub-cells," and "grouping sub-cells such that at least one group of sub-cells contains cells from at least two super-cells," and "randomly selecting sub-cells based on a code value for each super-cell," as recited in base claim 9 and similarly recited in base claims 18 and 27; or "wherein each super-cell has a different number of randomly selected sub-cells than all adjacent super-cells," as recited in dependent claims 14 and 23; or "wherein the pattern is selected from the group consisting of a square wave, a sine wave, a crossing pattern, a vertical pattern and a horizontal pattern," as recited in dependent claims 17 and 26, in combination with the limitations set forth in their corresponding base claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Lee whose telephone number is (571) 272-7436. The examiner can normally be reached on Monday-Friday, 7:30-5:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (571) 272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thomas D Lee
Primary Examiner
Technology Division 2625

tdl
March 23, 2007